

Application Serial No.: 10/027,902  
 Substitute Amendment and Response Dated August 18, 2004

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IN THE CLAIMS:

Please examine claims 30 to 59.

Claims 1 - 29 (Cancelled)

30. (Currently amended) A combustible fuel composition of combustible liquid fuel and an additive as a clear microemulsion having water present, wherein said combustible liquid fuel is selected from the group consisting of diesel fuel, kerosene, heating oil, coal slurry oil and distilled vegetable oil and said additive comprises:

- (a) ethanol having between 0.5 and 25% water by volume of ethanol;
- (b) one or more alcohols selected from the group consisting of:
  - (i) straight- or branched-chain alcohols having between 3 and 5 carbon atoms, and
  - (ii) straight- or branched-chain alcohols having between 6 and 12 carbon atoms, and;
- (c) ethoxylated alcohols (iii) having between 6 and 18 carbon atoms, where the ethylene oxide add-on is less than 5 moles, and
- (d) (e) a fatty acid of the structure  $R-(C=O)-OH$   $R-(C=O)-OH$ , wherein R is alkyl or alkylene having between about 10 to 24 carbon atoms, in combination with ammonia or urea in an anhydrous state or as an aqueous solution;

wherein components a, b, and c, and d as the additive when combined with mixing with ~~diesel~~ the combustible liquid fuel form a clear, stable microemulsion fuel composition having a viscosity within 10% of the original viscosity of the combustible liquid ~~diesel~~ fuel, and wherein the ratio of the combustible liquid ~~diesel~~ fuel to additive ranges from about 50:50 to 99:1 by volume, with the proviso that water is present in the composition sufficient to form the microemulsion and with the proviso that certain ethylene oxide condensation and ethylene oxide esterification products formed with 1) an alkyl phenol, 2) a fatty acid, or 3) a fatty alcohol where the ethylene oxide add-on is 5 or more moles, 4) a polyol or 5) a polyol and long-chain fatty acid are completely eliminated.

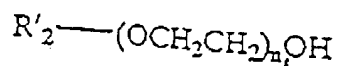
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31. (Previously added) The combustible fuel composition of claim 30 where the ratio of combustible liquid fuel to additive is between about 65:35 to 80:20.

32. (Previously added) The combustible fuel composition of claim 30 where the ratio of combustible liquid fuel to additive is between about 80:20 to 90:10.

33. (Currently amended) The combustible fuel composition of claim 30 wherein:  
in subpart (a) the alcohol is ethanol having between 0.5%-25% water by volume of ethanol; and  
in subpart (b) one or more alcohols is selected from the group consisting of:  
(b)(i) straight- or branched-chain alcohols having between 3 and 5 carbon atoms,  
(b)(ii) straight- or branched-chain alcohols having between 6 and 12 carbon atoms, and  
in subpart (c) ~~(b)~~(iii) the ethylene oxide condensation product is formed with a fatty alcohol of the formula:



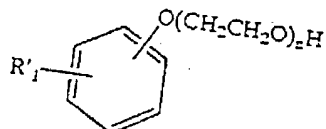
wherein  $R'_2$  is a long-chain saturated or unsaturated hydrocarbon radical containing 12 to 18 carbon atoms, and  $n_1$  is an integer from 1 to 4; and

in subpart (d) ~~(c)~~ the ammonia or urea is present sufficient to neutralize 40-80% of the fatty acid and completely eliminated are the following compounds:

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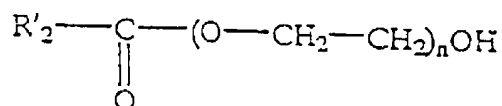
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the ethylene oxide condensation or esterification product formed with (i) an alkyl phenol of the formula:

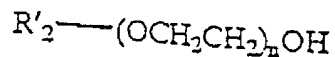


where  $\text{R}'_1$  is a alkyl chain having up to 8 carbon atoms and  $n$  is an integer from 5 to 20;

(ii) a fatty acid of the formula:



(iii) a fatty alcohol of the formula:

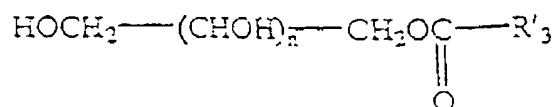


wherein  $\text{R}'_2$  is a long-chain, saturated or unsaturated hydrocarbon radical containing 12 to 18 carbon atoms, and  $n$  is an integer from 5 to 30;

(iv) a polyol having the formula:

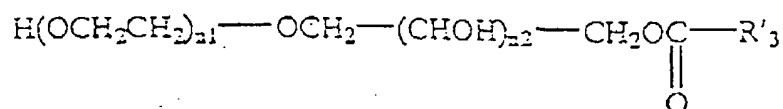
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wherein R'<sub>3</sub> is a long-chain, saturated or unsaturated hydrocarbon radical containing 12 to 18 carbon atoms, and n is an integer from 1 to 4; or

(v) a polyol and long-chain fatty acid having the formula:



wherein R'<sub>3</sub> has the meaning given above, n<sub>1</sub> is an integer from 5 to 30 and n<sub>2</sub> is an integer from 1 to 4.

34. (Currently amended) The combustible fuel composition of claim 30 wherein:

in subpart (b) the alcohol of

(b)(i) is selected from straight- or branched-chain alcohols having between 3 and 5 carbon atoms, with the proviso that

(b)(ii) is excluded, and

subpart (c) (b)(iii) is selected from ethoxylated alcohols having between 6 and 18 carbon atoms, where the ethylene oxide add-on is less than 5 moles.

35. (Currently amended) The combustible fuel composition of claim 30

wherein in subpart (b) the alcohol (b)(i) is excluded,

(b)(ii) is selected from straight- or branched-chain alcohols having between 6

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and 12 carbon atoms, and  
subpart (c) (b)(iii) is selected from ethoxylated alcohols having between 6 and 18 carbon atoms, where the ethylene oxide add-on is less than 5 moles.

Please cancel claims 36-39 without prejudice or disclaimer.

Claims 36-39 (Cancelled)

40. (Currently amended) A combustible fuel composition of combustible liquid fuel selected from diesel fuel, kerosene, heating oil, coal slurry oil and distilled vegetable oil and an additive as a clear microemulsion with water present wherein said additive comprises:

- (a) ethanol having between 0.5 and 5% 10% water by volume of ethanol;
- (b) one or more alcohols selected from the group consisting of:
  - (i) straight- or branched-chain alcohols having between 3 and 5 carbon atoms, and
  - (ii) straight- or branched-chain alcohols having between 6 and 12 carbon atoms, and ;
- (c) (iii) ethoxylated alcohols having between 6 and 18 carbon atoms, where the ethylene oxide add-on is less than 5 moles;
- (d) (e) a fatty acid of the structure  $R-(C=O)-OH$   $R-(C=O)-OH$ , wherein R is alkyl or alkylene having between about 10 to 24 carbon atoms, in combination with ammonia or urea in an anhydrous state or as an aqueous solution and the ammonia or urea is present sufficient to neutralize about 40-80% of the fatty acid;

wherein components a, b, and c, and d as the additive when combined with mixing with ~~diesel the combustible liquid~~ fuel form a clear, stable microemulsion fuel composition having a viscosity within 10% of the original viscosity of the combustible liquid ~~diesel~~ fuel, and wherein the ratio of the combustible liquid ~~diesel~~ fuel to additive ranges from about 50:50 to 99:1 by volume, with the proviso that water is present in the composition sufficient to form the microemulsion and with the proviso that certain ethylene oxide condensation and ethylene oxide esterification products formed with 1) an alkyl phenol, 2) a fatty acid, or 3) a fatty alcohol where

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the ethylene oxide add-on is 5 or more moles, 4) a polyol or 5) a polyol and long-chain fatty acid  
are completely eliminated.

41. (Currently amended) The combustible fuel composition of claim 40  
wherein;

in subpart (b) the alcohol

(b)(i) is ~~excluded~~, selected from straight- or branched-chain alcohols having  
between 3 and 5 carbon atoms

(b)(ii) is ~~straight- or branched-chain alcohols having between 6 and 12 carbon  
atoms, and excluded, and~~

subpart (c) (b)(iii) is ethoxylated alcohols having between 6 and 18 carbon atoms, where  
the ethylene oxide add-on is less than 5 moles.

42. (Currently amended) The combustible fuel composition of claim 40  
wherein in subpart (b) the alcohol (b)(i) is excluded,

(b)(ii) is selected from straight- or branched-chain alcohols having between 6  
and 12 carbon atoms, and

subpart (c) (b)(iii) is selected from ethoxylated alcohols having between 6  
and 18 carbon atoms, where the ethylene oxide add-on is less than 5  
moles.

Please cancel claim 43 without prejudice or disclaimer.

Claim 43 (Cancelled)

44. (Currently amended) The combustible fuel composition of claim 40 where the ratio  
of ~~diesel~~ combustible liquid fuel to additive is between about 65:35 to 80:20.

45. (Currently amended) The combustible fuel composition of claim 40 where the ratio  
of ~~diesel~~ combustible liquid fuel to additive is between about 80:20 to 90:10.

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46. (Currently amended) A combustible fuel composition of combustible liquid fuel selected from diesel fuel, kerosene, heating oil, coal slurry oil and distilled vegetable oil and an additive as a clear microemulsion with water present wherein said additive comprises:

- (a) ethanol having between 5 and 10% water by volume of ethanol;
- (b) one or more alcohols selected from the group consisting of:
  - (i) straight- or branched-chain alcohols having between 3 and 5 carbon atoms, and
  - (ii) straight- or branched-chain alcohols having between 6 and 12 carbon atoms and ;
- (c) (iii) ethoxylated alcohols having between 6 and 18 carbon atoms, where the ethylene oxide add-on is less than 5 moles.
- (d) (c) a fatty acid of the structure  $R-(C=O)-OH$ , wherein R is alkyl or alkylene having between about 10 to 24 carbon atoms, in combination with ammonia or urea in an anhydrous state or as an aqueous solution and the ammonia or urea is present sufficient to neutralize about 40-80% of the fatty acid;

wherein components a, b, and c, and d, as the additive when combined with mixing with diesel combustible liquid fuel form a clear, stable micro emulsion fuel composition having a viscosity with "10% of the original viscosity of the combustible liquid ~~the diesel~~ fuel, and wherein the ratio of the combustible liquid diesel fuel to additive ranges from about 50:50 to 99:1 by volume, with the proviso that water is present in the composition sufficient to form the microemulsion and with the proviso that certain ethylene oxide condensation and ethylene oxide esterification products formed with 1) an alkyl phenol, 2) a fatty acid, 3) a fatty alcohol where the ethylene oxide add-on is 5 or more moles, 4) a polyol or 5) a polyol and long-chain fatty acid are completely eliminated.

47. (Currently amended) The combustible fuel composition of claim 46 wherein;

in subpart (b) the alcohol of

- (b)(i) is ~~excluded~~; straight or branched-chain alcohols having between 3 and 5 carbon atoms,

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- (b)(ii) ~~is straight- or branched-chain alcohols having between 6 and 12 carbon atoms, with the proviso that is excluded, and~~  
(c) ~~(b)~~(iii) is ethoxylated alcohols having between 6 and 18 carbon atoms, where the ethylene oxide add-on is less than 5 moles.

48. (Currently amended) The combustible fuel composition of claim 46 wherein in subpart (b) the alcohol (b)(i) is excluded,  
(b)(ii) is selected from straight- or branched-chain alcohols having between 6 and 12 carbon atoms, and  
subpart (c) (b)(iii) is selected from ethoxylated alcohols having between 6 and 18 carbon atoms, where the ethylene oxide add-on is less than 5 moles.

49. (Currently amended) The combustible fuel composition of claim 46 where the combustible fuel is diesel fuel and the ratio of diesel fuel to additive is between about 65:35 to 80:20.

50. (Currently amended) The combustible fuel composition according to claim 46 30 wherein the ratio of combustible liquid fuel to additive is between about ~~65:35~~ 80:20 to 90:10.

51. (Currently amended) The combustible fuel composition according to claim 30 wherein the combustible fuel is ~~kerosene~~ diesel fuel.

52. (Currently amended) The combustible fuel composition according to claim 51 wherein the ratio of ~~kerosene~~ diesel fuel to additive is between about 65:35 to ~~80:10~~ 90:10.

53. (Currently amended) The combustible fuel composition according to claim 30 wherein the combustible fuel is ~~heating oil~~ kerosene.



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54. (Currently amended) The combustible fuel composition according to claim 53 wherein the ratio of ~~heating oil~~ kerosene to additive is between about 65:35 to 90:10.

55. (Currently amended) The combustible fuel composition according to claim 30 wherein the combustible fuel is ~~coal slurry~~ heating oil.

56. (Currently amended) The combustible fuel composition according to claim 55 wherein the ratio of ~~coal slurry~~ heating oil to additive is between about 65:35 to 90:10.

57. (Currently amended) The combustible fuel composition according to claim 30 wherein the combustible fuel is a distilled liquid vegetable oil derived from renewable resources ~~such as vegetable oil~~.

58. (Currently amended) The combustible fuel composition according to claim 57 wherein the distilled liquid fuel is derived from soybeans, safflower, sunflower, linseed, cottonseed, corn, rapeseed, or tall oil.

59. (Previously added) The combustible fuel composition according to claim 57 wherein the ratio of distilled liquid derived from renewable resources to additive is between about 65:35 to 90:10.

60. (New) The combustible fuel composition according to claim 30 wherein the combustible fuel is coal slurry.

61. (New) The combustible fuel according to claim 60 wherein the ratio of coal slurry to additive is between about 65:35 to 90:10.